



NICKEL INVESTIGATION PLAN

**232 Monroe Street Site
(MID 980 795 512)
Saline, Michigan**

DATE: June 29, 2018

This CTI and Associates, Inc. (CTI) Investigation Plan describes actions for investigation of nickel impacts in soil and groundwater at the Adient 232 Monroe Street site. The selection of soil and groundwater sampling locations was based, in part, on the information presented in Appendix A, which includes historical drawings and previous soil sampling results.

CTI's scope of work and anticipated sequence of events are provided in the sections below.

1. Preliminary Activities

- 1.1. Underground utility identification and location marking.
 - 1.1.1. Initiate a Michigan Miss Dig underground utility locate request a minimum of 3 working days prior to field activities.
 - 1.1.2. Coordinate with the City of Saline, as required, to identify area underground utilities.
- 1.2. Prepare a site specific health and safety plan.
 - 1.2.1. Identify and address physical hazards
 - 1.2.2. Identify and address chemical hazards

2. Mobilization

- 2.1. Mobilize personnel, equipment, and materials. CTI anticipates using the following equipment:
 - 2.1.1. Geoprobe®
 - 2.1.2. Support Truck
 - 2.1.3. Dozer
- 2.2. Health and safety
 - 2.2.1. Perform site safety orientation.
 - 2.2.2. Perform daily safety (tailgate) meetings prior to beginning site activities.
 - 2.2.3. Modified Level D personal protective equipment used by onsite personnel
 - Hardhat
 - Safety glasses
 - Protective toe and shank work boots
 - Hearing protection
 - High visibility vests
 - Protective gloves
 - Nitrile, canvas, or other as appropriate to the work task

3. Site Preparation

- 3.1. Surface soil disturbance will be minimized during these activities
- 3.2. A land surveyor will locate planned soil boring and monitoring well locations.
- 3.3. Clear trees/bushes within the work area. Whole trees will be knocked over in place with the

dozer, if possible. Chainsaws will be used as necessary. Depending on size, trees will either be loaded into a haul truck or placed in a stockpile location on the Adient property. CTI will coordinate tree stockpile location with Adient.

4. Soil Borings

- 4.1. The drilling subcontractor will advance up to 24 soil borings using direct-push drilling techniques. See **Figure 1** for soil boring locations.
- 4.2. Borings will be advanced to the top of the clay layer underlying the site (approximately 5-15 feet deep). Soil samples will be collected continuously by a 2" split spoon sampler for field screening and to classify the stratigraphy at each location.
- 4.3. A minimum of 2 soil samples will be collected at each boring location and submitted for laboratory analysis. Sampling intervals will be from 1-2', and the groundwater interface interval. Additional samples may be collected based on PID screening or visible soil staining.
- 4.4. Samples will be collected and submitted to Pace Laboratories for analysis.
 - 4.4.1. Samples will be analyzed for VOCs, Michigan 10 metals, nickel, PCBs, and cyanide using SW 846 methods.
- 4.5. Soils will be returned to borehole or spread in the vicinity of the boring.
- 4.6. All drilling equipment will be decontaminated between each borehole.
- 4.7. A boring log will be completed by a CTI geologist for each borehole.

5. Temporary Groundwater Monitoring Well Installation

- 5.1. The drilling subcontractor will convert up to 10 soil borings into temporary monitoring wells. See **Figure 1** for proposed monitoring well locations.
- 5.2. Wells will be installed to the top of the site-wide confining clay layer (approximately 5-15 feet deep) and screened in the bottom 5' of the saturated zone. If saturated zone is greater than 5' thick, the screened interval will be centered vertically in the saturated zone. Drilling and logging will be as described in Section 4.
- 5.3. Each well will be constructed with a 2-inch polyvinylchloride (PVC) casing and a 5' pre-packed screen. A bentonite seal will be placed above the filter pack, and grout will be used to fill annular space to the ground surface.
- 5.4. Temporary well surface completion will consist of the riser (only) to approximately 3-feet above the ground surface and a locking cap.
 - 5.4.1. If the well is later converted to a permanent well, the surface completion will include 4-inch steel protective casing with a locking cap.
- 5.5. All drilling equipment will be decontaminated between each borehole.
- 5.6. A well construction diagram will be completed by a CTI geologist for each installed well.

6. Monitoring Well Development/Sampling

- 6.1. Each newly installed well will be developed to remove fines from the filter pack at least 24-hour after installation. A submersible pump with disposable polyethylene tubing will be used to purge water from the well until the produced water is clear.
- 6.2. All IDW water will be containerized in 55-gallon drums and temporarily stored onsite for analysis and proper disposal.
- 6.3. Groundwater samples will be collected from each newly installed monitoring well utilizing low-flow sampling methods and submitted to Pace Laboratories for analysis.



6.3.1. Samples will be analyzed for VOCs, Michigan 10 metals, nickel, cyanide, and available cyanide using SW 846 methods.

7. IDW Management

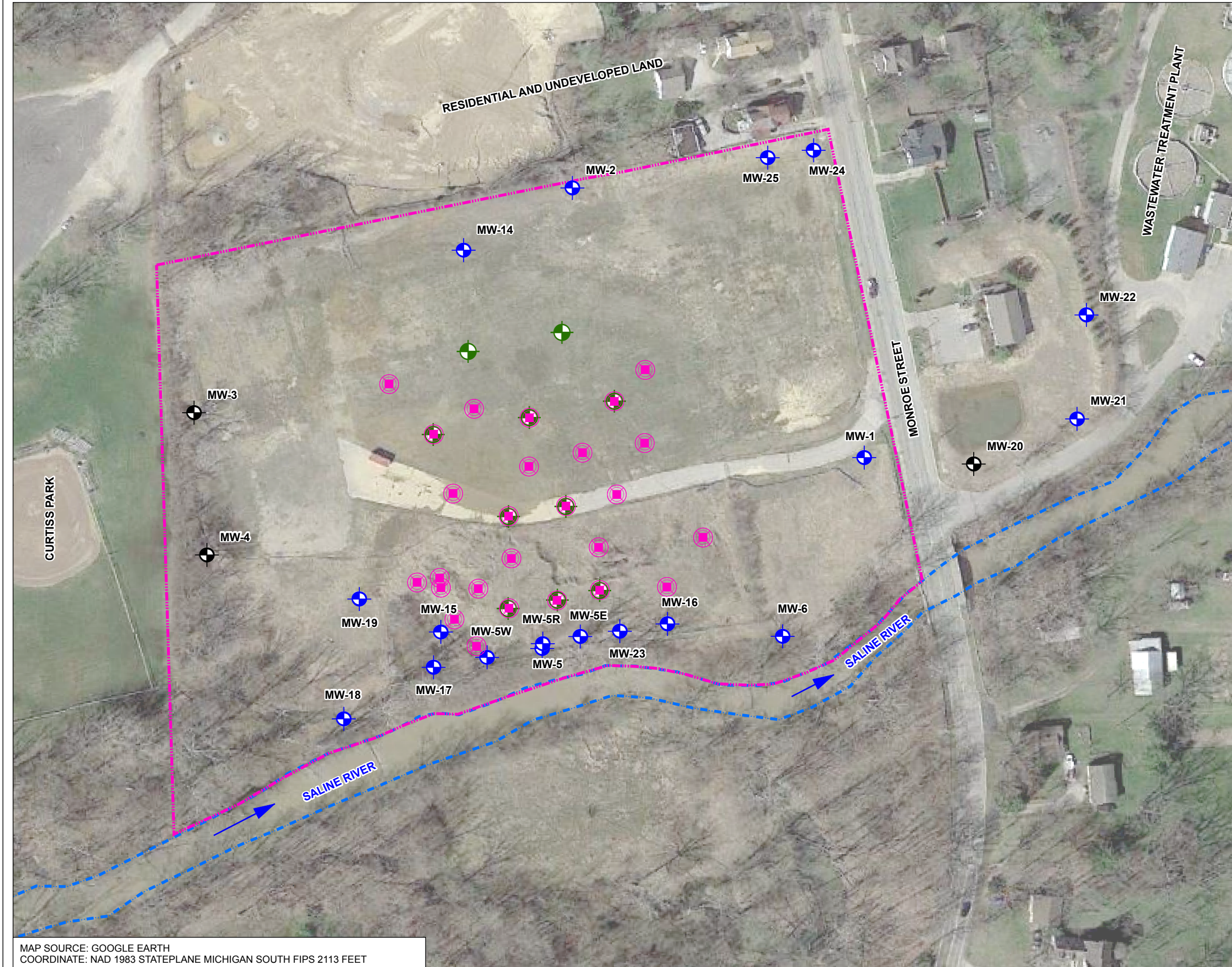
- 7.1. All water waste generated during drilling, well development, purging, and decontamination will be containerized, characterized, and properly disposed of.
- 7.2. All soils generated will be either returned to the borehole or spread in the immediate vicinity of the boring.

8. Demobilization

- 8.1. Demobilize equipment and personnel.
- 8.2. Clean existing asphalt pavement.
- 8.3. Regrade existing Adient site soils if necessary.

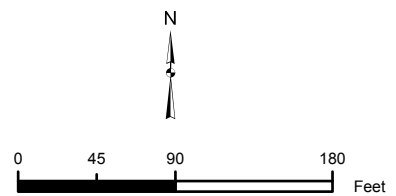
FIGURES

Proposed Soil Boring and Monitoring Well Locations



Legend

- Proposed Soil Boring Location
- Proposed Well Location
- Monitoring Well
- Missing Well
- Saline River
- Site Boundary



SITE LAYOUT
WASHTENAW INDUSTRIAL FACILITY
SALINE, MICHIGAN

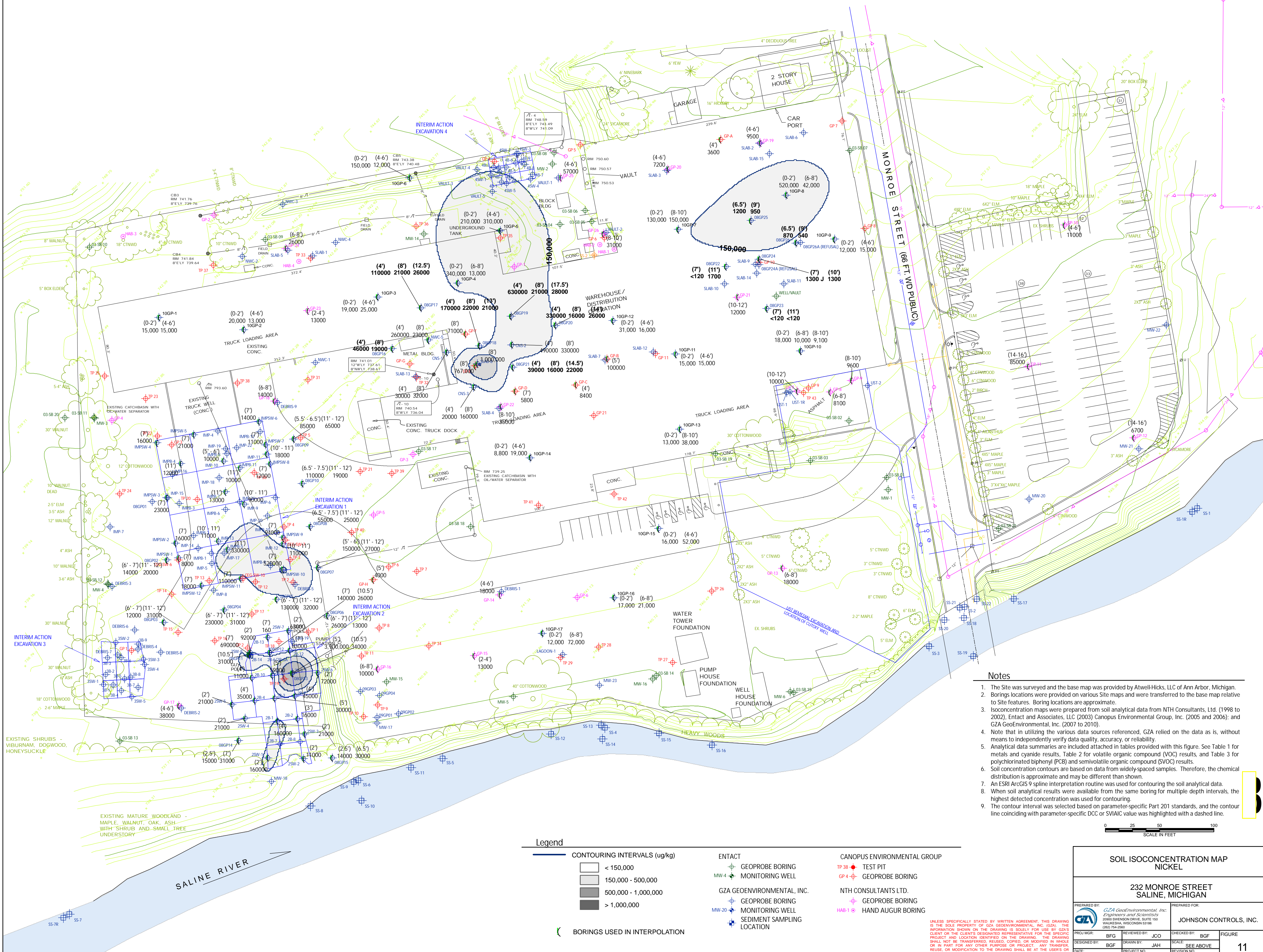
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Reviewed By:	AJL	Project No.:	1175010011

Figure

MAP SOURCE: GOOGLE EARTH
COORDINATE: NAD 1983 STATEPLANE MICHIGAN SOUTH FIPS 2113 FEET

Appendix A

Historical Figures and Supporting Documentation



Notes

- 1. The Site was surveyed and the base map was provided by Atwell-Hicks, LLC of Ann Arbor, Michigan.
- 2. Borings locations were provided on various Site maps and were transferred to the base map relative to Site features. Boring locations are approximate.
- 3. Isoconcentration maps were prepared from soil analytical data from NTH Consultants, Ltd. (1998 to 2002), Entact and Associates, LLC (2003) Canopus Environmental Group, Inc. (2005 and 2006); and GZA GeoEnvironmental, Inc. (2007 to 2010).
- 4. Note that in utilizing the various data sources referenced, GZA relied on the data as is, without means to independently verify data quality, accuracy, or reliability.
- 5. Analytical data summaries are included attached in tables provided with this figure. See Table 1 for metals and cyanide results, Table 2 for volatile organic compound (VOC) results, and Table 3 for polychlorinated biphenyl (PCB) and semivolatile organic compound (SVOC) results.
- 6. Soil concentration contours are based on data from widely-spaced samples. Therefore, the chemical distribution is approximate and may be different than shown.
- 7. An ESRI ArcGIS 9 spline interpretation routine was used for contouring the soil analytical data.
- 8. When soil analytical results were available from the same boring for multiple depth intervals, the highest detected concentration was used for contouring.
- 9. The contour interval was selected based on parameter-specific Part 201 standards, and the contour line coinciding with parameter-specific DCC or SVIAC value was highlighted with a dashed line.

0 25 50 100
SCALE IN FEET

Legend

- CONTOURING INTERVALS (ug/kg)
- < 150,000
 - 150,000 - 500,000
 - 500,000 - 1,000,000
 - > 1,000,000
- BORINGS USED IN INTERPOLATION

- ENTACT
- GEOPROBE BORING
 - MONITORING WELL
- GZA GEOENVIRONMENTAL, INC.
- GEOPROBE BORING
 - MONITORING WELL
 - SEDIMENT SAMPLING LOCATION

- CANOPUS ENVIRONMENTAL GROUP
- TEST PIT
 - GEOPROBE BORING
- NTH CONSULTANTS LTD.
- GEOPROBE BORING
 - HAND AUGUR BORING

SOIL ISOCONCENTRATION MAP
NICKEL

232 MONROE STREET
SALINE, MICHIGAN

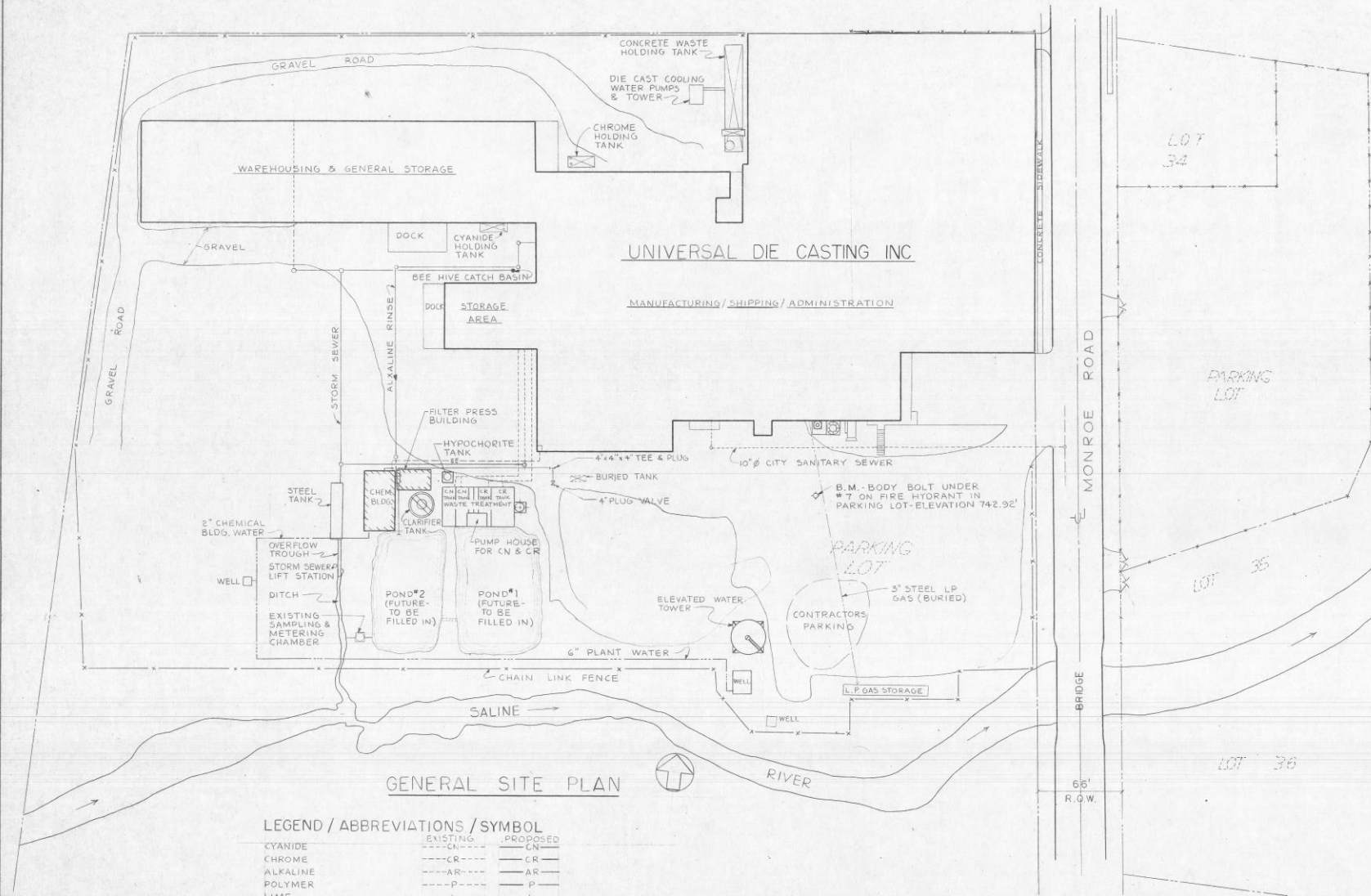


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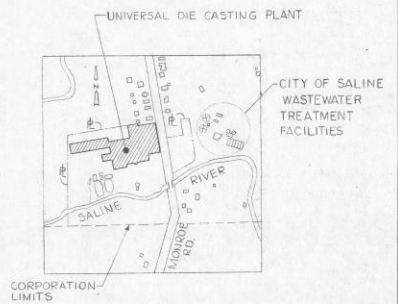
PROJ MGR:	BGF	REVIEWED BY:	JCO	CHECKED BY:	BGF	FIGURE
DESIGNED BY:	BGF	DRAWN BY:	JAH	SCALE:	SEE ABOVE	
DATE:	7/27/10	PROJECT NO:	20.0151644.10	REVISION NO:		



GENERAL SITE PLAN

LEGEND / ABBREVIATIONS / SYMBOL

CYANIDE	EXISTING	PROPOSED
CHROME	---CN---	---CR---
ALKALINE	---AR---	---AR---
POLYMER	---P---	---P---
LIME	---L---	---L---
STORM	---ST---	---ST---
SANITARY	---SAN---	---SAN---
ELECTRICAL CONDUIT	---EE---	---EE---
FORCE MAIN (WELL WATER)	---	---
FENCING (CHAIN LINK)	---	---
TOP OF CURB	T.O.C.	
BENCH MARK	B.M.	
ELEVATION	E.L.	
INVERT ELEVATION	I.E.	
PROPERTY LINE	---	
BUILDING		
DEMOLITION & REMOVAL		



LOCATION MAP